

## CLAIMS:

1. An electrowetting device comprising a variable element and a control system for the variable element, wherein the control system is adapted to provide an asymmetric voltage waveform to the variable element.
- 5 2. An electrowetting device, as claimed in claim 1 having a peak voltage to effective voltage ratio of less than  $2^{1/2}$ .
3. An electrowetting device as claimed in claim 1 or claim 2, in which the voltage waveform supplied is substantially rectilinear.
- 10 4. An electrowetting device as claimed in any preceding claim, in which the control system is adapted to provide a variable pulse width and/or wave height.
5. An electrowetting device as claimed in claim 4, in which positive and negative  
15 sections of the voltage waveform have different heights.
6. An electrowetting device as claimed in claim 4 or claim 5, in which the control system is adapted to provide positive and negative sections of the waveform having different pulse widths.
- 20 7. An electrowetting device as claimed in any preceding claim, in which the variable element is a variable focus lens.
8. An electrowetting device as claimed in any preceding claim, in which the  
25 voltage waveform has a frequency much greater than a mechanical resonance frequency of a meniscus of a conducting liquid of the variable element.

9. An electrowetting device as claimed in any preceding claim, in which the voltage waveform has a frequency less than the frequency above which a capacitor formed by the device is not substantially fully charged.
- 5 10. An variable lens, variable filter and/or variable diaphragm incorporating an electrowetting device as claimed in any one of claims 1 to 9.
11. An image capture device incorporating an electrowetting device as claimed in any one of claims 1 to 9.
- 10 12. A telephone incorporating an image capture device incorporating an electrowetting device as claimed in any one of claims 1 to 9.
13. A method of controlling an electrowetting device comprises supplying an  
15 asymmetric voltage waveform to a variable element of the electrowetting device.
14. A method of controlling an electrowetting device, as claimed in claim 13, in which said waveform has a peak voltage to effective voltage ratio less than  $2^{1/2}$ .
- 20 15. A method of controlling an electrowetting device as claimed in claim 13 or claim 14, in which the voltage waveform is a substantially rectilinear voltage waveform.
16. A method of controlling an electrowetting device as claimed in any one of claims 13 to 15, in which the voltage waveform has a variable pulse width and/or height.
- 25 17. A method of controlling an electrowetting device as claimed in any one of claims 13 to 16, which includes varying the pulse width and/or pulse height to reduce a charging of an insulating layer of the variable element.
- 30 18. A method of controlling an electrowetting device as claimed in claim 17, which includes determining a particular waveform having reduced charging of the insulating layer and providing that waveform to the variable focus lens.